

Serial No.: 10/826,198  
Group Art Unit: 2634

### AMENDMENTS TO CLAIMS

- Please amend pending claims 1, 6, 11, and 16 as indicated below. A complete listing of all claims and their status in the application are as follows:

1. (currently amended) A method for measuring jitter on a data signal,  
comprising:

inputting a data signal under test to digitally generate data signal transition locations;  
digitally latching a data signal transition location using a sampling clock signal;  
digitally converting the data signal transition location to a delay value;  
digitally converting the delay value to an edge position output; and  
digitally detecting a value of the edge position output.

2. (original) The method of claim 1 further comprising filtering the edge position output prior to detecting a value of the edge position output.

3. (original) The method of claim 1 further comprising adding a dither signal to the signal under test prior to inputting the signal under test to generate signal transition locations.

4. (original) The method of claim 1 further comprising analyzing the edge position output to determine edge position movement in excess of a predetermined magnitude.

5. (original) The method of claim 1 further comprising analyzing the edge position output to provide a root mean square value thereof.

6. (currently amended) A method for measuring jitter on a data signal,  
comprising:

inputting a data signal under test to digitally generate data signal transition locations;  
digitally latching a data signal transition location using a sampling clock signal;  
digitally converting the data signal transition location to a delay value;  
digitally converting the delay value to an edge position output using the sampling clock signal;  
digitally detecting peak-to-peak values of the edge positions; and  
outputting the detected peak-to-peak values of the edge positions.

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7. The method of claim 6 further comprising filtering the edge position outputs prior to detecting peak-to-peak values of the edge position outputs.

8. (original) The method of claim 6 further comprising adding a dither signal to the data signal under test prior to inputting the data signal under test.

9. (original) The method of claim 6 further comprising analyzing the edge position output to determine edge position movement in excess of a predetermined unit interval magnitude.

10. (original) The method of claim 6 further comprising analyzing the edge position output to provide a root mean square value thereof.

11. (currently amended) Apparatus for measuring jitter on a data signal, comprising:

a tapped delay line for digitally generating data signal transition locations therein from a data signal under test inputted thereinto;

a sampling clock signal;

a sample register connected for digitally latching a data signal transition location therein in response to the sampling clock signal;

a priority encoder connected for digitally converting the data signal transition location to a delay value;

a converter connected for digitally converting the delay value to an edge position output; and

a peak-to-peak detector connected for digitally detecting values of the edge positions.

12. (original) The apparatus of claim 11 further comprising a digital signal processing filter connected for filtering the edge position output prior to the peak-to-peak detector detecting values of the edge positions.

13. (original) The apparatus of claim 11 further comprising a dither unit connected for adding a dither signal to a signal under test prior to the signal under test being inputted into the tapped delay line.

14. (original) The apparatus of claim 11 further comprising an over-range detector connected for analyzing the edge position output to report edge position movement in excess of a predetermined magnitude.

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15. (original) The apparatus of claim 11 further comprising a block that:  
performs root mean square measurement calculations; and  
is connected for analyzing the edge position output to provide a root mean square  
value thereof.
16. (currently amended) Apparatus for measuring jitter on a data signal,  
comprising:  
a field programmable gate array carry chain;  
a tapped delay line that is implemented in the field programmable gate array carry  
chain for digitally generating data signal transition locations therein from a  
data signal under test inputted thereinto;  
a sampling clock signal;  
a sample register connected for digitally latching a data signal transition location  
therein in response to the sampling clock signal;  
a priority encoder connected for digitally converting the data signal transition location  
to a delay value;  
a converter for digitally converting clock and delay to time values and connected for  
digitally converting the delay value to an edge position output; and  
a peak-to-peak detector connected for digitally detecting and outputting peak-to-peak  
values of the edge positions.
17. (original) The apparatus of claim 16 further comprising digital signal  
processing filters connected for filtering the edge position output prior to the peak-to-peak  
detector detecting peak-to-peak values of the edge positions.
18. (original) The apparatus of claim 16 further comprising a dither unit  
connected for adding a dither signal to a data signal under test prior to the data signal under  
test being inputted into the tapped delay line.
19. (original) The apparatus of claim 16 further comprising an over-range  
detector connected for analyzing the edge position output to report edge position movement  
in excess of a predetermined unit interval magnitude.

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20. (original) The apparatus of claim 16 further comprising a block that:  
performs root mean square measurement calculations; and  
is connected for analyzing the edge position output to provide a root mean square  
value thereof.